

REMARKS

Claims 1, 2, 4-6, 10-14, 18-21, 25, and 26 are pending in this application. Claims 3, 7-9, 15-17, and 22-24 are canceled herein. Claims 1, 10, and 20 have been amended herein. Claims 25 and 26 have been added. In view of these amendments and remarks, Applicant respectfully requests reconsideration of the claims.

All of the claims were rejected under 35 U.S.C. 103 (a) as being unpatentable over applicant's prior art ("APA") in view of one or more of Pinto, *et al.* (U.S. Patent 6,667,226), Mandelman, *et al.* (U.S. Patent 6,284,593), and Divakaruni, *et al.* (U.S. Patent 6,814,107).

However, all of the claims now in the case are method claims, and many of the steps of the method claims are required to be performed in a particular order. Applicant's prior art, APA, as discussed in paragraphs 7 and 8 describes the semiconductor device of Figures 1 and 2 and does not make any mention of the process that formed the particular features of the 1 and 2 structures. Applicant's attorney will agree that the structure of Figure 1 and Figure 2 inherently requires that some features of the structure of Figures 1 and 2 must be fabricated or formed before other features. For example, an insulating layer cannot be deposited on the bottom and side walls of the trench until the trench is formed. However, most of the formation or fabrication of other structures features described in these figures can be formed by different processes and in different orders. It is both the specific process steps and the order of performing these specific process steps that typically determines the claims of a patent. The applicant's attorney respectfully submits that this is the case in the present application.

For example only, claim 1 now requires the patterning of the first region with at least one first or deep trench to occur after the step of forming the first active or high voltage area. Similarly, the claim requires not only that the shallow trenches in the first region be located over

the deep trenches in the first region, but also requires both the first and second regions to be patterned with the shallow trench at the same time. Further, claim 1 also now requires that the active or low voltage areas formed in the second region not be formed until the insulating material has been deposited in both the at least one second trench and in the semiconductor material recess of the at least one first trench. Nowhere does the APA or the references of record, whether considered singly or in combination, teach these unique combinations of method steps. Claims 2 and 4-6 depend from the amended claim 1 and are liable not only for their own limitations but also for depending from a claim deemed allowable.

The method of claim 10 is different than claim 1 in that it also eliminates the problem of aligning the shallow trenches with the deep trenches in the first region. According to the embodiment of claim 1, the deep trenches of the first region is again patterned after the formation of the at least one high voltage active area. However, the process steps of the embodiment of claim 10 requires the semiconductor material in the deep trench located in the first region to be recessed and that one hard mask portion then be formed over the at least one first region and another hard mask portion be formed over the at least one second region. The hard mask portion is then left in place over the first region with the deep trenches whereas the hard mask portion over the second region is patterned and the pattern transferred so as to form at least one shallow trench in the second region. Then after the shallow trench in the second regions are formed any remaining hard mask is removed, including hard mask material deposited in the deep trenches, and then the insulating material is deposited in that at least one shallow trench and in the semiconductor material recess of the at least one deep trench. Since at least one deep trench in the first region is not as wide as the at least one shallow trench in the second region, the trench

isolation provided at the surface of the substrate in the first region is not as wide as the trench isolation provided at the surface of the substrate in the second region.

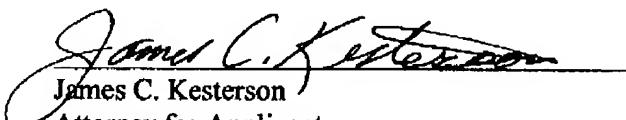
Therefore, it is submitted that claim 10 now clearly includes process steps no where even suggested much less taught by the references of record or the considered singly art in combination. Claims 11-14 and 18-21 as well as new claims 25 and 26 are also believed to be patentable not only for their own limitations, but also for depending from a claim deemed allowable.

Therefore, it is respectfully submitted that all the claims now in the case do patentably define over all references of record and are in condition for allowance.

In view of the above, Applicant respectfully submits that the application is in condition for allowance and requests that the Examiner pass the case to issuance. If the Examiner should have any questions, Applicant requests that the Examiner contact Applicant's attorney at 972-732-1001 so that such issues may be resolved as expeditiously as possible. No fee is believed due in connection with this filing. However, should one be deemed due, the Commissioner is hereby authorized to charge the appropriate fees to Deposit Account No. 50-1065.

Respectfully submitted,

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Date



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